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TRANSFORMATION OF BANKS' BUSINESS MODELS IN THE CONTEXT OF ENSURING THE SECURITY OF THE BANKING SYSTEM IN KAZAKHSTAN

The article discusses the main aspects of the development of the banking sector, taking into account the development of digital solutions. The vectors in the development of high-tech in banks are discussed, as well as the changes that these technologies bring to business processes, banking solutions and offers, customer service models and the improvement of the personal ecosystem. Domestic and foreign examples of the use of high-tech in the process of planning, evaluating and monitoring decisions are analyzed, which makes it possible to demonstrate the prospects for their application for further implementation of the principles and procedures of effective management. The study showed that the digital agenda of the entire process chain will become the main vector of development of any business, including banking. In addition, the use of advanced technologies in the banking system will help solve a large number of unresolved issues. Technologies such as machine learning, P2P lending, blockchain and artificial intelligence will provide an opportunity to moderate technological changes, allow you to personalize solutions, reduce the time of banking transactions, eliminate technical errors in calculations and the risks of deliberate data distortion.

The purpose of the study is to present a description of the main directions of digital transformation of banks' business models in the context of ensuring the security of the banking system in Kazakhstan.

Keywords: banking sector, innovative technologies in banks, credit risks, digitalization, banking services market, artificial intelligence.

Introduction

In its simplest form, digitalization involves converting existing information into digital format. In the context of business literature, digitalization also encompasses two types of changes in operating models. The first model involves transferring communications to digital channels, while the second focuses on automating routine operations. These two models are closely interrelated [1]. Significant changes in the banking sector have occurred over the past few years. People are adapting to technology at an increasingly rapid pace, enabling the creation of more cost-effective and efficient processes.

Service models are undergoing substantial transformations due to the influence of digital technologies, as well as the development of an integrated network economy [2]. Large and technologically advanced banks are creating their own ecosystems, which open up new, non-traditional sources of income. The demand for innovation is primarily driven by consumers, fueling industry advancements [3]. The pace at which new ideas, technologies, and business models are emerging is so rapid that the key factors for competitiveness and maintaining customer loyalty are the speed of bringing products to market and their quality. Non-banking players are increasingly offering financial services and are becoming full-fledged competitors to traditional banks [4].

According to a study conducted by McKinsey in 2016, the number of customers preferring to use alternative channels rather than traditional ones is growing, reaching 72 %. For European countries it is typical but higher than in North America (61 %) [5].

Depending on the method of service, 60 % of customers use remote banking (internet banking – 18%, mobile banking – 9 %, both platforms – 33 %) [6].

Materials and methods

In crafting the theoretical part of the publication, which addresses the key challenges of digitalization in the banking sector, a variety of general scientific methods were utilized. These encompassed observation, comparison, measurement, analysis and synthesis, logical reasoning, and a thorough review of scientific literature and professional sources. For the analytical section, which focuses on processing statistical data, specialized scientific methods were applied, including statistical analysis, graphical methods, and expert evaluation.

Results and discussion

The IT sector allows the banking sector to introduce new technologies. The automation of processes utilizing big data analysis, artificial intelligence, and remote access has made Kazakhstan's economic sector one of the most innovative. The digital transformation across various industries is illustrated in Figure 1 [7].

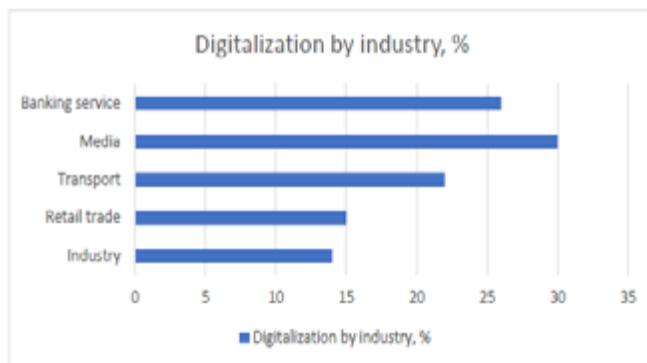


Figure 1 – Ranking of digital transformation business priorities by industry
Note: Compiled by the authors

The prerequisites for the digitalization of banking activities are shown in Figure 2. The last two conditions are interconnected, as the implementation of new technologies necessitates regulatory oversight. It is important to note that the foundational technologies for digitalization, which started to be gradually integrated into public life and the economy, emerged as early as the 20th century.



Figure 2 – Prerequisites for digitalization
Note: Compiled by the authors

Figure 4 illustrates the key stages of digitalization within the global financial system. While these technologies emerged in Kazakhstan slightly later, their current level has reached a global standard. This is evident from an analysis of the regulatory framework governing the operations of credit institutions. The initial technologies were introduced in the early 1980s of the 20th century. It was in 1987 when banks first began utilizing electronic computers in their operations. Initially, these machines were primarily used for information processing within State Bank institutions. Notably, reporting was not obligatory for institutions that processed information within the State Bank’s information and computing stations at that time [8].

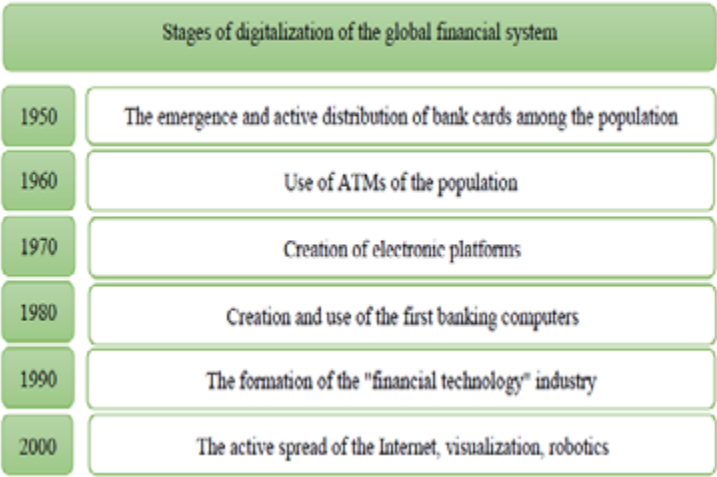


Figure 3 – Stages of digitalization of the global financial system
Note: Compiled by the authors

Digitalization encompasses a vital set of measures aimed at supporting transactional services through software and hardware means, primarily conducted via bank transfers. However, achieving this necessitates the development of information and software innovations. It’s crucial to highlight that technological advancements are contingent upon legislative alterations in banking service provision practices; without such changes, reaching the current level of digital technology development would be unattainable. The advent of Internet banking is closely linked to the evolution of technologies enabling remote delivery of banking services.

Primarily, digital transformation involves upgrading existing business technologies to enhance customer experience and boost enterprise conversion rates. There are four primary domains that drive digital transformation, including:

- The process
- Technology
- Data
- Organizational changes.

In simple terms, digital transformation in the banking industry involves incorporating digitalization across all aspects of banking operations. This results in a comprehensive restructuring of how work is conducted and how financial institutions, beyond just banks, deliver value to customers.

Simultaneously, there's a rapid advancement in mobile technology. The integration of blockchain and the Internet of Things (IoT) into banking infrastructure has expedited the digitalization of banking institutions. With these technologies readily available, numerous instances of banking transformation are shaping the financial landscape, including:

- Fraud detection systems
- Data encryption
- KYC software.

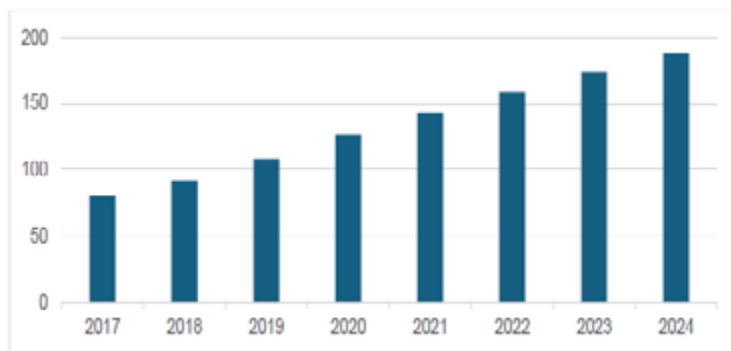


Figure 4 – Dynamics of revenue from fintech development

Note: Compiled by the authors

The above figure shows that revenue from the development of fintech solutions amounted to 92 billion euros, and by 2024 it is expected to reach 188

billion euros. Moreover, there are several more reports from experts that mean that the FinTech market will dominate worldwide.

Digital banking stands out as the most sought-after type of FinTech software. Whether it's a mobile application or web-based platform, online banking empowers customers with remote access to their financial services at their convenience. Leading financial service providers and others excel in offering top-notch digital banking solutions to their customers.

In Kazakhstan, the financial market is rapidly advancing towards digitalization and enhanced accessibility of services. The country has secured its position in the Top 3 nations of Central and South Asia in terms of innovation [9], with its growth rate marking it as one of the fastest-growing fintech markets in the region.

As of January 4, 2024, the banking sector in the Republic of Kazakhstan comprises 21 second-tier banks, including 11 banks with foreign participation, of which 8 are subsidiary banks. The ratio of STB assets to GDP is 46.5 % [10].



Figure 5 – The role of the banking sector in the economy of the Republic of Kazakhstan

Note: Compiled by the authors

The development of the fintech market in Kazakhstan is manifested in several key areas.

1 The rise of non-cash transactions, incorporating contactless payment methods like NFC, QR codes, and mobile P2P transfers, facilitating 24/7 transactions and streamlining processes through remote identification mechanisms.

2 The emergence and growth of digital ecosystems, characterized by the development of a range of products tailored to diverse user needs. Presently, nearly every bank in the country offers its own mobile application. Additionally, the fintech sector in Kazakhstan boasts payment companies and independent

entities that create versatile payment services and applications, such as TypiPay, Simply, and Woopay. Moreover, companies are seamlessly penetrating the B2B segment, with platforms like Buhta.kz, Uchet.kz, and MyBuh.kz.

3 The proactive adoption of emerging technologies and digital innovations by participants in the financial market. Projects utilizing artificial intelligence and machine learning for analytics and forecasting, as well as distributed ledger technologies for enhanced security, are gaining popularity among market players.

Despite the increasing pace of digitalization, fully digital banks remain scarce in the Kazakhstan market. Some factors contributing to this slowdown include the unique characteristics of each bank and stringent regulations. Previously established IT infrastructures are marked by low flexibility and complexity in integrating new solutions. Nonetheless, traditional banks are establishing digital business units within or outside their structures and striving to stay abreast of trends by introducing standalone digital solutions.

The factors driving the transition to new digital technologies are depicted in Figure 6.

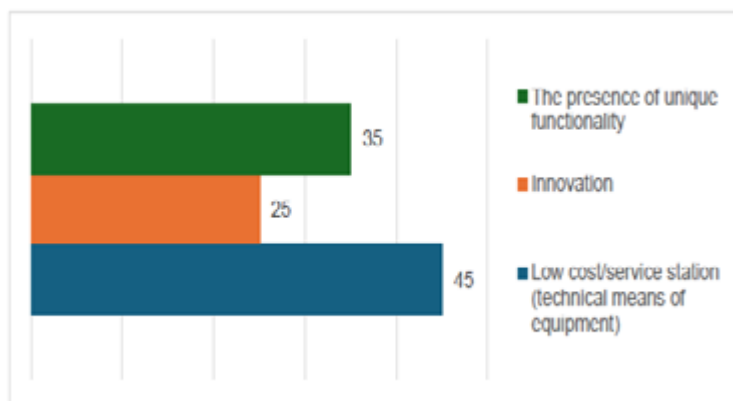


Figure 6 – Factors of transition to new digital technologies, in particular %
Note: Compiled by the authors

Seventy-five percent of banks polled advocate for consolidating digitalization efforts into a unified platform capable of integrating various solutions. In seeking new digital solutions, banks prioritize high availability, service flexibility, comprehensive functionality, and user-friendliness. Security remains a paramount concern for the vast majority. In today's rapidly changing digitalization, traditional financial representatives are compelled to update their systems to meet customer

demands and stay ahead in the competition. Despite numerous opportunities, incorporating High-tech can present significant challenges.

The banking sector is experiencing significant changes, driven by technological progress and shifting customer preferences. To remain competitive, banks must adopt High-tech and exploit new innovations to enhance the customer experience and extract value from data. Below are the primary factors driving this change.

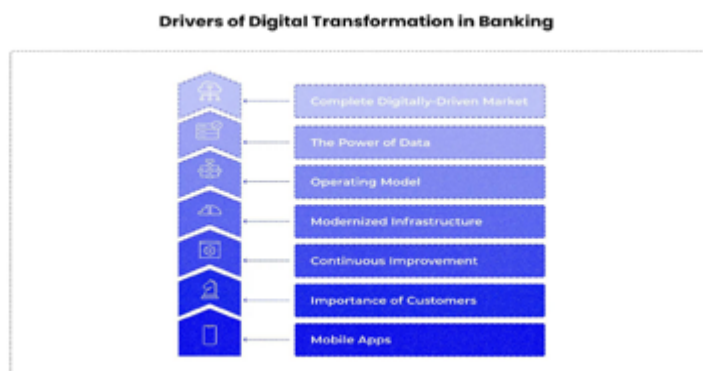


Figure 7 – Drivers of digital transformation for banking

Note: Compiled by the authors

When evaluating the influence of different drivers, modern banks view High-tech not just as tools to enhance their operations and services, but as essential catalysts for reshaping their entire business frameworks.

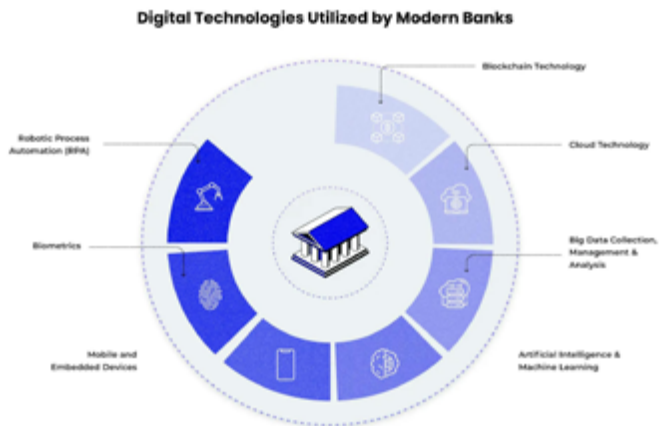


Figure 8 – Digital technologies utilized by modern bank

Note: Compiled by the authors

The substantial resources and expertise available within the banking industry enable it to fully capitalize on the potential of these technologies, propelling the next phase of innovation in the financial services sector. This shift towards digital transformation in banking is poised to persist, and organizations that fail to adapt risk falling behind.

Conclusion

The digital transformation of the financial industry has become the new standard extending beyond all sectors. In this blog, we've discussed various features that will accelerate the shift of financial services towards a digital format.

Furthermore, the Global Financial Market Report provides insight into the promising future of the FinTech market, not only in the United States but globally as well. The integration of automation and new technologies has made FinTech safer and more accessible, facilitating the online operation of numerous banking services such as payments, loans, and personal finance.

Presently, the global banking sector stands at the forefront of digital transformation. Traditional banks, aiming to remain competitive in the digital era, are diligently seeking out new technologies for digital transformation to enhance their dynamism, operations, and effectiveness in meeting customer needs.

For the secure and efficient development of the digital financial landscape, coordinated measures must be implemented across all stakeholders, alongside

timely and proportional regulation. Such regulation aims to maintain financial system stability, safeguard consumer rights, and foster the development and implementation of digital innovations.

However, the proliferation of digital technologies in the financial sector also presents certain risks. Technological advancements create an environment conducive to the emergence of projects promising investors high returns, such as online P2P lending platforms. Yet, the Chinese market's experience highlights that regulatory oversights can lead to fraudulent schemes and widespread bankruptcies among P2P companies. This risk is pertinent to Kazakhstan as well, where certain segments of the population, unfamiliar with financial market intricacies, may invest in “financial pyramids” and other dubious schemes.

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ҚАЗАҚСТАН БАНК ЖҮЙЕСІНІҢ ҚАУІПСІЗДІГІН ҚАМТАМАСЫЗ ЕТУ КОНТЕКСТІНДЕ БАНКТЕРДІҢ БИЗНЕС- МОДЕЛЬДЕРІН ТРАНСФОРМАЦИЯЛАУ

Мақалада цифрлық шешімдердің дамуын ескере отырып, банк секторын дамытудың негізгі аспектілері қарастырылған. Банктердегі high-tech дамуындағы векторлар, сондай-ақ бұл технологиялардың бизнес-процестерге, банктік шешімдер мен ұсыныстарға, тұтынушыларға қызмет көрсету үлгілеріне және жеке экожүйені жақсартуға енгізетін өзгерістері талқыланады. Қабылданған шешімдерді жоспарлау, бағалау және мониторингтеу процесінде high-tech қолданудың отандық және шетелдік мысалдары талданды, бұл нәтижелі басқару принциптері мен рәсімдерін одан әрі енгізу үшін оларды қолдану перспективаларын көрсетуге мүмкіндік береді. Зерттеу бүкіл процестер тізбегінің цифрлық күн тәртібі кез келген бизнесті, соның ішінде банктік бизнесті дамытудың негізгі векторына айналатынын көрсетті. Сонымен қатар, банк жүйесінде озық технологияларды қолдану көптеген шешілмеген мәселелерді шешуге көмектеседі. Машиналық оқыту, P2P несиелеу, жасанды интеллект сияқты технологиялар технологиялық

өзгерістерді модерациялауға мүмкіндік береді, шешімдерді жекелендіруге мүмкіндік береді, банктік операцияларды жүргізу уақытын қысқартады, есептеулердің техникалық қателіктерін және деректерді қасақана бұрмалау тәуекелдерін жояды.

Зерттеудің мақсаты Қазақстанның банк жүйесінің қауіпсіздігін қамтамасыз ету контекстінде банктердің бизнес-модельдерін цифрлық трансформациялаудың негізгі бағыттарының сипаттамасын ұсыну.

Кілтті сөздер: банк секторы, банктердегі инновациялық технологиялар, несиелік тәуекелдер, цифрландыру, банктік қызметтер нарығы, жасанды интеллект.

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ТРАНСФОРМАЦИЯ БИЗНЕС-МОДЕЛЕЙ БАНКОВ В КОНТЕКСТЕ ОБЕСПЕЧЕНИЯ БЕЗОПАСНОСТИ БАНКОВСКОЙ СИСТЕМЫ КАЗАХСТАН

В статье рассматриваются основные вопросы развития банковской сферы с учетом цифровых технологий. В рамках конференции обсуждаются векторы развития high tech в банковском секторе, изменения в бизнесе, решениях и предложениях по обслуживанию клиентов, банковских решениях и предложениях, способах предоставления услуг и совершенствования личной системы. В статье представлены примеры использования high tech в планировании, оценке и мониторинге принятых решений, а также проанализированы перспективы их дальнейшего применения для реализации принципов и методов результативного

менеджмента. Согласно исследованию, цифровые повестки всех процессов станут основным направлением для развития любых компаний, в том числе банков. Благодаря использованию передовых технологических решений в банковской сфере, можно решить множество неразрешимых проблем. Технологии машинного обучения, банковского кредитования, искусственного интеллекта предоставят возможность модерировать технологические изменения, позволят персонализировать решения, сократят время проведения банковских операций, исключат технические погрешности расчетов и риски преднамеренного искажения данных.

Цель исследования — представить характеристику основных направлений цифровой трансформации бизнес-моделей банков в контексте обеспечения безопасности банковской системы Казахстана.

Ключевые слова: банковский сектор, инновационные технологии в банках, кредитные риски, цифровизация, рынок банковских услуг, искусственный интеллект.

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